

Claims

- [1] 1. A liquid crystal display comprising:
a plurality of switching elements arranged in a matrix;
a plurality of gate lines connected to the switching elements and transmitting gate signals for turning on or off the switching elements, and
a plurality of data lines connected to the switching elements and transmitting data voltages,
wherein at least one of the switching elements in a row or in a column is connected to a different-sided gate line or to a different-sided data line.
- [2] 2. The liquid crystal display of claim 1, wherein a pair of switching elements adjacent above and below are connected to a gate line therebetween or opposite-sided gate lines.
- [3] 3. The liquid crystal display of claim 1, wherein a pair of switching elements adjacent above and below comprise a first pair of switching elements connected to a gate line therebetween and a second pair of switching elements connected to opposite-sided gate lines.
- [4] 4. The liquid crystal display of claim 3, wherein the first and the second pair of switching elements are adjacent to each other.
- [5] 5. The liquid crystal display of claim 4, wherein the pair of switching elements further comprise a third pair of switching elements connected to a gate line located in the same side as and a data line located in an opposite side to the first pair of switching elements and a four pair of switching elements connected to a gate line located in the same side as and a data line located in an opposite side to the second pair of switching elements, and the third and the fourth pair of switching elements are adjacent to each other.
- [6] 6. The liquid crystal display of claim 5, wherein a first switching group comprising the first and the second pair of switching elements and a second switching group comprising the third and the fourth pair of switching elements are arranged regularly.
- [7] 7. The liquid crystal display of claim 6, wherein the first and the second switching element groups are arranged regularly in a row direction.
- [8] 8. The liquid crystal display of claim 7, wherein the first switching element group is arranged repeatedly in a column direction.
- [9] 9. The liquid crystal display of any one of claims 6 to 8, wherein the switching

elements are parts of subpixels representing colors, and the subpixels comprising the switching elements belonging to the first and the second switching groups represent three primary colors and a white color.

[10] 10. The liquid crystal display of any one of claims 2 to 8, wherein the switching elements are parts of subpixels representing colors, and the subpixels in the same column represent the same color.

[11] 11. The liquid crystal display of claim 10, wherein the subpixels represent three primary colors.

[12] 12. The liquid crystal display of claim 10, wherein the subpixels represent three primary colors and a white color.

[13] 13. The liquid crystal display of claim 1, further comprising a data driver applying the data voltage via the data line and performing an $N \times 1$ (N is a natural number) dot inversion or a column inversion.

[14] 14. The liquid crystal display of claim 1, wherein the switching elements are parts of subpixels representing three primary colors and a white color, and the subpixels in the same column represent the same color.

[15] 15. The liquid crystal display of claim 14, wherein four adjacent subpixels respectively representing three primary colors and a white color form a pixel; the switching elements belonging to the subpixel are all connected to the same -sided data lines;
the switching elements belonging to the subpixels of two pixels adjacent in a row direction are connected to different -sided gate lines; and
the switching elements belonging to the subpixels of two pixels adjacent in a column direction are connected to the same -sided gate lines.

[16] 16. The liquid crystal display of claim 15, further comprising a data driver applying the data voltages via the data lines and performing a 1×1 dot inversion.

[17] 17. The liquid crystal display of claim 14, wherein four adjacent subpixels respectively displaying three primary colors and a white color form a pixel; the pixel comprises a first and a second pixels adjacent in a row direction; the switching elements belonging to the subpixels of the first pixel and the switching elements belonging to the subpixels of the second pixel are connected to opposite-sided data lines; and
the switching elements belonging to two subpixels of the subpixels of the first pixel are connected to opposite-sided gate lines.

[18] 18. The liquid crystal display of claim 17, wherein the switching elements

belonging to the subpixels of the second pixel are all connected to the same gate line.

- [19] 19. The liquid crystal display of claim 18, wherein the switching elements belonging to the subpixels of the respective pixels are connected to the same - sided data lines.
- [20] 20. The liquid crystal display of any one of claims 17 to 19, further comprising a data driver applying the data voltages via the data lines and performing a column inversion.